DRiVER

AUGUST 1981

BUCKLE UP BABES

WHAT IS IT?

MAKE IT CLICK

WHY RIDER EDUCATION?

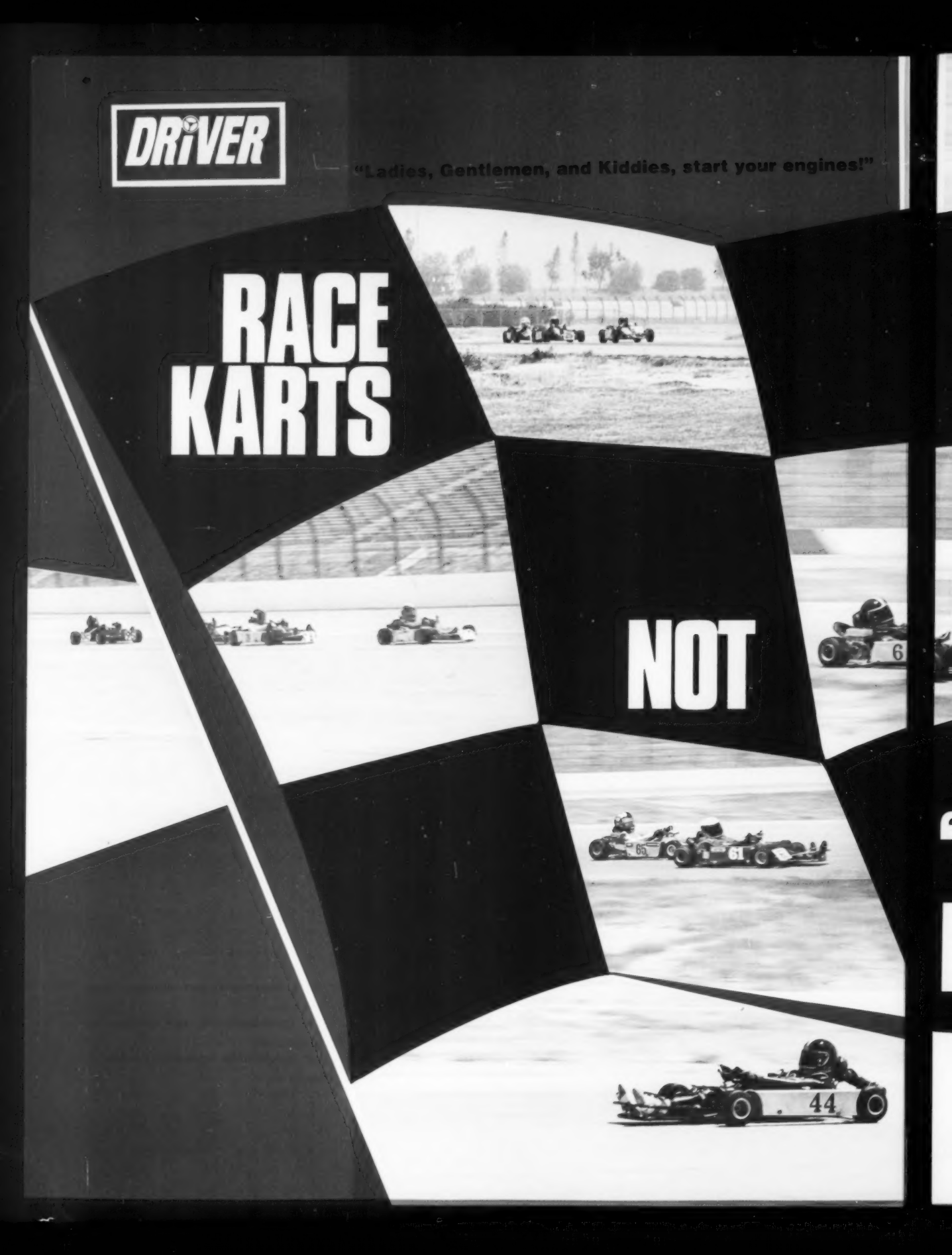
not "GO"

RACE Kats

DRiVER

"Ladies, Gentlemen, and Kiddies, start your engines!"

RACE KARTS NOT



Kart #5 pulls out of the slipstream to pass Kart #3 as a third machine moves up in the draft. Yes, these are twin-engine Karts, with a 100cc two-stroke droning in each ear. How's that for stereo?

"GO" KARTS

You're lying flat on your back with your helmeted head tipped so that you're looking between your feet. There isn't an inch of air between your seat and the pavement. And you're rushing along at more than 100 mph!

You slide around the last turn. The G-forces tug at your head, straining every muscle in your neck. One instant you're at the right edge of the pavement, the next you're at the left. Another half-inch to the left and your treadless tires would drop off the asphalt into the desert sand and you'd be history. Still you press your right foot against the gas pedal.

The engine launches you down the straight. You squeeze the special grip built into the steering that allows you to adjust your engine's output. The roar of the engine is deafening, even with your ear plugs.

You're in the slipstream of the machine in front, being sucked along by his draft. He's pushing the air aside for both of you; you're driving in a vacuum. The heat from his exhaust pours onto you. You glance at the temperature gauge. It is still well below the 320 limit.

You continue to accelerate down the ribbon of asphalt. There's one machine in front of you — and six behind. All sailing down the straight in line, just like a model train and its cars. If you were any closer, your feet would be the leader's headrest.

At just the right instant you use the horsepower you've been saving in the draft to accelerate into the lead.

Looming in front of you is the hard-left first corner. It looks too tight to be even a freeway ramp. You are so low to the ground you can't see even part of the way around it. Still you fly toward it — your right foot stays flat, all the way down.

At the last instant you apply just enough brake to shift the vehicle's weight forward and with a slight twitch of the steering the machine takes a "set" and you run full power into the corner. You don't lift your right foot off the gas a fraction of an inch. You "trail" off the brake to make sure the machine stays balanced. It's hard acceleration all the way around that 90-degree corner.

Right edge of the pavement, left edge at the corner's apex, right edge again, and down the next short straight. It happens faster than you can read it. It happens with such a blur of speed and vibrations that the memory doesn't record it as motion, but as stop action.

Are you driving a multi-million-dollar Formula One Grand Prix car? No. How about a $500,000 turbocharged Indianapolis Championship racer? No, guess again. A $250,000 Can-Am Challenge Cup car? Nope. A $75,000 Formula Atlantic? No way. How about a $25,000 Super Vee? No, not even a $15,000 Formula Ford.

continued

(left)
John Roach and his custom-built Road Racing Kart at 120 mph.

DRIVER

THE
TRAFFIC SAFETY MAGAZINE
FOR THE MILITARY DRIVER

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE INSPECTION AND SAFETY CENTER
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AUG

VOLUME 15 NUMBER 3

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THE EDITOR SPEAKS

DOUBLE CLUTCH

WHATEVER HAPPENED TO THE ELECTRIC CAR?

When we were going through our research files recently we found a fat folder labeled "Electric Cars." Nothing had been added to it for several years. That set us to thinking about what high hopes everyone had for the electric car in the late '60s and early '70s.

Today, only General Motors is continuing active development of electric vehicles. Gulf & Western Industries is advocating use of its battery system (zinc-chlorine) for electric vehicles but has said it does not plan to produce a car. And the only other electric vehicles generally available are low-volume conversions of conventionally powered cars such as Ford Escorts and Volkswagen Rabbits.

Apparently the limited capacity, short life, and expense of batteries have made the electric car unappealing to the auto companies. Ford says the battery is the weak link and there has been no breakthrough despite all the time and money spent on research. Although GM executives were talking about a breakthrough with the zinc-nickel-oxide battery as recently as 1979, GM now says the battery still needs improvement before electric cars can compete with conventionally-powered subcompacts. The big auto maker has said its car needs a top speed of 60 mph, a range of at least 80 miles between charges (which would take eight hours or longer), and a battery life of 30,000 miles. After 30,000 miles, the entire battery pack would have to be replaced. Some engineers estimate that cost at more than $2,000.

In 1976, Congress passed the Electric and Hybrid Vehicle Act calling for the development of vehicles not dependent on foreign oil. The nation's electric utilities, seeing a large potential market for unused nighttime generating capacity, also pressed for electric car development. But, despite $120 million in federally-backed research, the electric car seems a long way off.

race karts not "go" karts

continued

Since Karts are relatively light they are easy to work on. Just pick the machine up and set it on a stand.

A single disk is all most Karts have for brakes, although some do have four-wheel units. However, because of the great cornering force a Kart generates and the amount of speed the wide, treadless tires can scuff off, the single unit on the solid rear axle is all most Karts need for slowing power.

You've just taken a ride on an $1,800 Road Racing Kart. That's right, racing Kart!

Not "Go Kart!" Race Kart, not "Go Kart." Forget you ever heard the term "Go Kart." Go Kart was the name of a brand of kart at the origins of Karting some 25 years ago. The term might still be applied to those machines that you can rent a ride on in a parking lot. But the only similarity between today's racing Karts and Go Karts is ancestry.

Today's racing Karts require as much sophisticated chassis and engine tuning as any world-class "full-size" race car, but at a fraction of the cost. In fact, you can probably do a whole season on less than $4,000.

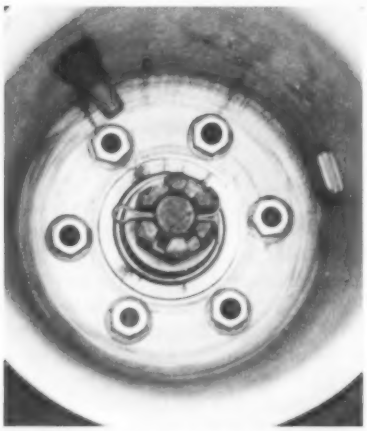
Where would you like to race? Watkins Glen? Road Atlanta? How about Talledga, Riverside, Charlotte or Daytona? Or would you like to show your skills to the crowd at the United States Grand Prix West on the streets of Long Beach? These are all places you can race a Kart.

Is the $1,800 price tag still too stiff for your wallet? Well, that's for a new

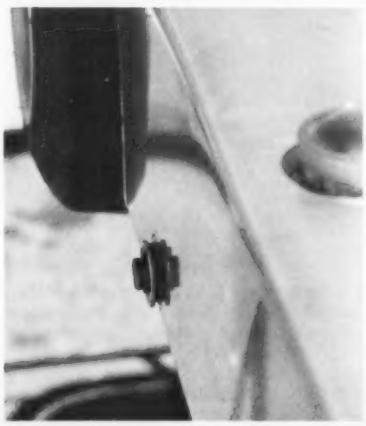
continued

continued

(left) Attention to detail and safety is a hallmark of Karting. Notice that even the mountings for this brake master cylinder are safety wired. **(right) Safety** always comes first with racers right down to double-checking every nut and bolt of every wheel.



(left) In some areas such as axle nuts, cotter pins are used instead of safety wiring. **(right) Safety** in the steering system includes safety wiring and SAE Grade 8 nuts and bolts all the way.



racing machine. Used ones for road racing run $800 to $1,200.

If that's still too rich for your blood, consider sprint racing. That's the familiar sit-up style Karting that started the sport. New sprint machines cost $1,000 to $1,800, with used vehicles bringing $400 to $700 on the average.

There's also a form of Karting for dirt oval racers. Speedway Karts cost about the same as Sprint Karts.

But I want a "real" race car: If you don't think Karts are real racing machines, consider that World Driving Champions Emerson Fittipaldi, Jody Scheckter and Alan Jones all started racing Karts. You want something American? Mario Andretti, Bobby Unser and Al Unser all chose to start their sons' racing careers in Karts. And these young men all show the promise of being every bit as great as their fathers!

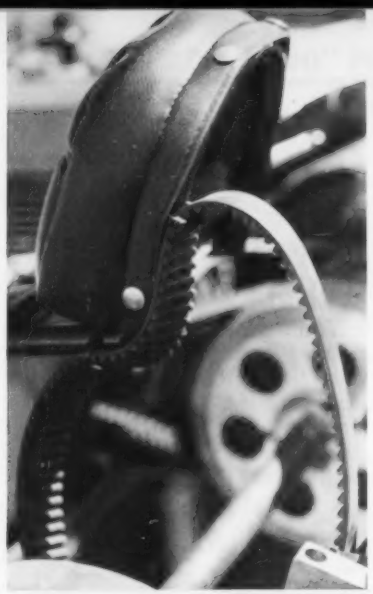
But don't get the idea that Karting is good training for open-wheeled lightweights only. One of NASCAR's young lions, Lake Speed, is a former World Karting Champion.

What about safety? Karting probably has the best safety record of any motor sport. But it is only that way because of the drivers' attitudes. Kart drivers know that they are exposed to danger and not only drive accordingly, but dress for the worst, to boot.

In many respects, Kart racers and motorcycle racers are the same. The operators never know for sure when they're going to be evicted from their seat at speed onto unforgiving pavement, dirt or gravel. Therefore, Karters are required to wear full-coverage crash helmets of approved design, goggles or visors, jackets of heavyweight leather or vinyl mate-

(far left)
Some people would have you believe that Karts have nonadjustable solid frames. Look closely and you'll see otherwise. The washers on the front axle are not there because of misfitting parts. And the washers on the front kingpin help a great deal when dialing in "stagger," a term you'll hear chassis engineers use from Indianapolis to Monaco.

(near left)
Fuel tanks even have special mounts, secured with cotter pins.



Cog-tooth belts are used instead of chains because they don't require oiling to endure the standard one-hour road race. Besides, it is easy to carry a spare.

rial, and full-length pants. Needless to say, most wear full motorcycle leathers, although some new nylon one-piece suits have been approved.

In addition, there are some special safety rules for the Karts that have full bodies. These rules include the standard roll bars, seat belts and Nomex (flameproof) clothing.

Nomex underwear is recommended for all drivers.

Safety is of course paramount in the pre-race technical inspection all machines receive. Major areas of concern at tech inspection include: vehicle appearance, tires, wheels, wheel bearings, axle nuts, brakes, wheel balancing weights, throttle return springs, fuel tanks, fuel lines, chain oilers, chain guards, clutches, clutch guards, front suspension, steering, frame and bumpers.

There is also a post-race inspection for minimum weight, vehicle size, legal fuel and engine legality.

As with any form of organized racing, there is always a full complement of emergency equipment and qualified medical personnel in attendance. And there is the system of communications between race officials and the drivers: flags.

What's it like out there? The best way to get the feel for Karting is to get into the heart of the action. For a minor insurance fee (usually less than $5), you can get into the paddock at most Road Racing Kart events. There you can see for yourself what is involved. You'll also find most Karters more than willing to answer your questions.

DRIVER recently went to the Southern California Karters' Grandnational Tune-Up at Willow Springs in the Mojave Desert. Our host for the weekend was U.S. Navy Lt. Cmdr. John J. Roach III. Commander Roach flies the Navy's first line aircraft, F-14 Tomcats, out of Naval Air Station Miramar in San Diego. However, this was his first race since returning from 10 months in the Indian Ocean on the U.S.S. Ranger. John started racing in sports cars, but he's been involved in Karting since 1959.

Classes and the family: Although many "professional" teams compete, Karting still retains its family appeal and atmosphere. In fact, in Road Racing Karting there are two special junior classes for drivers 12 to 15 years old.

The majority of the Road Racing categories are for 100cc single-engine machines with the various classes being determined by type of engine, engine modifications, and established minimum weights. There are also classes for 125cc, 135cc, 200cc, and 270cc machines. The largest class and two Formula Kart Experimental (bodied) classes are the only ones permitting gearboxes.

As a comparison, in Sprint Kart competition there are three junior classes made up of eight different engine/modification/weight groups.

continued

Squeeze the special grip in the left part of the steering yoke and it adjusts the expansion chamber in the muffler. This, in turn, increases the engine's horsepower at high rpm because two-cycle engines depend heavily on exhaust tuning.

Diaphragm carburetors act as their own fuel pumps. They are easy to adjust, which also means they are easy to adjust wrong. Tuning any racing engine is an art.

(left) Carburetor inter-workings need constant attention and cleaning. **(right) Two-cycle engines** require oil be mixed with the fuel to provide lubrication. Because John Roach runs in an open class, he is permitted to modify his engine within the 100cc displacement limit and use any fuel, excluding highly dangerous hydrazine, of course. John carefully measures the castor oil, a synthetic oil, a castor oil viscosity extender and a special upper cylinder lubricant that he mixes with his methanol fuel. He doesn't use nitromethane because he wants his engine to stay in one piece until the end of the race.

The "Black Art" of spark plug reading is just as important in Karting as it is at Indianapolis.

race karts not "go" karts

continued

Two of these groups are for 9- to 12-year-olds while the rest are for 12- to 15-year-olds.

In adult sprint Karting (16 and older) there is a novice class made up of four engine/modification/weight groups. Then there are six amateur classes. Here the rookie seniors have two combinations in their class, while three of the remaining classes are limited to a single engine, weight and fuel selection. The other two amateur classes each have four engine/modification/weight groups.

For expert Sprint Karters there are four classes. One is made up with four categories, the second with eight and the other two with three each categories of engine/modification/weight.

One Kart, one engine and some bolt-on weight, and you can run two classes. Choose the engine right, and your son or daughter can also race the same machine. Invest $375 in a different engine and you may add another class or two. The engine might be the same as the original engine so

TELL 'EM YOU SAW IT IN DRIVER

If you want more information about Karting there are a couple of excellent books on the subject. They are:

KART RACING
by Jerry Leonard
Julian Messner Publishing
Attn: B. Colby
Simon & Schuster Bldg.
1230 Avenue of the Americas
New York, NY 10020

KARTING
by Leroi "Tex" Smith
ARCO Publishing Co., Inc.
219 Park Avenue South
New York, NY 10002

Or you may want to write to the major North American Karting Organizations. Their addresses are:

International Kart Federation (IKF)
416 South Grand Ave.
Covina, CA 91724

World Karting Association (WKA)
P.O. Box 2548
North Canton, OH 44720

Professional Karting Assoc. (PKA)
P.O. Box 105
Edison, CA 93220

Serious racers are the same in Karting and Formula One. They make only one change at a time and keep a complete record of every change and the results.

(left) In the 100-plus-degree temperature of the Mojave Desert, John provides his own shade while awaiting the start of the first of two races. **(right) Road Racing Karts** have centrifugal clutches and require external starters.

you can run one of the large, twin-engine classes, too.

It is not unusual to find mom and the family dog lounging around the motorhome keeping everybody in refreshments, while dad, son and daughter work out of a trailer-workshop keeping three or four Karts ready and running in just about every class on the track. And all for much, much less than it would cost dad to run any type of sports car alone.

But don't forget; they're racing Karts, not Go Karts.

(below)
At Ontario Motor Speedway (before it fell on the auction Block) Road Racing Karts fly down the front straight. The Karters drafting each other will soon overtake the lone leader as the science of slipstreaming provides them more top speed.

(right, below and inset)
Thirty seconds before the flag falls, the engines are started. When the flag falls, the LeMans-style start takes place and the machines leave in a cloud of oil smoke from the two-stroke engines.

(left) Action at Ontario last year finds Road Racing Karts dicing through an ess turn, two and three abreast. **(right) The fastest Karts** are the 270cc open machines with their alcohol-fueled motorcycle Grand Prix engines and six-speed gearboxes.

WHAT'S THE MESSAGE?

In all types of racing, flags are used for communications between the racing officials and the drivers. Although some meanings vary slightly from organization to organization, the basic meaning of each flag is:

■ **Green:** Start competition; the track is clear. ■ **Yellow:** Caution. Do not pass, hold your position, slow down until green flag appears. In many types of racing there are two types of yellow: stationary and waving. The waving yellow is for immediate caution, be prepared to stop. ■ **Yellow with red stripes:** Oil, water or other slippery substance on racing surface. Use caution. ■ **Red:** Stop immediately! The track is unsafe for racing. ■ **Yellow and red** flags waved together: Restart. ■ **Blue:** You are being over-taken by a faster competitor; make room. ■ **White:** In sprint-style racing and America oval racing, the white flag means one lap remaining in race. However, in road racing the white flag may also be . . ■ **White with red cross:** Emergency vehicle(s) on course, use caution. Give emergency vehicle(s) a wide berth. ■ **Black:** Reduce speed and stop at the designated race official. Used for poor driving, rules infractions and hazardous mechanical conditions. (Sometimes the black flag may have an ■ **Orange ball** in the center. This is for poor mechanical conditions only and is called the "Meat Ball.") ■ **Black,** rolled: Your driving habits are bordering on disqualification. ■ **Checkered:** The race is over.

buckle-up babes

by
Capt Ronald J. Wartburg
Chief, Safety Division
Grisson AFB, Indiana

Every year about 1500 children under the age of five are killed and more than 70,000 are injured while riding in motor vehicles. These statistics from the National Safety Council are shocking, but what is more shocking is that many of these deaths and injuries were needless and could have been prevented if the children had been properly restrained.

In sudden stops, swerves, and crashes children are regularly thrown into the dashboard, windshield, other parts of the car, or into another passenger. Children are crushed by adults who are not wearing seatbelts, and they are often ejected from the car.

Because parents don't insure that their children are restrained in the family car, the automobile ranks higher than all other types of accidents and diseases as the leading killer of young children. Less than seven percent of the kids under 10 are protected by child restraints or lap belts. Even when these devices are used, they are often inadequate or improperly used.

Many loving parents who take pride in insuring that their children are innoculated against childhood diseases, wear the nicest clothes, and have the best toys money can buy often don't take the steps necessary to insure safety in the automobile. We've all seen youngsters standing on the front seat of a car or pick-up. And we've also noticed the young mother who holds her baby while riding as a passenger.

No question about it. Child restraints and seatbelts save lives! But we safety professionals must provide the education and opportunity for parents to do something about their children's safety. Grissom's "Buckle-Up Babes" program is designed not only to tell parents about the life-saving benefits of seatbelts and child seats, but also to provide the equipment.

Here's how we set the program up: Grissom's Combat Support Group and the Officers' Wives Club donated funds to purchase 18 General Motors "Infant Love Seats." These seats were chosen because of their low initial cost, ease of maintenance, simple construction, and ability to be installed in any vehicle.

The program was launched after an extensive publicity campaign. Articles were supplied to the base newspaper, the *Pacesetter*, and letters and posters were sent to the pediatrics and gynocology clinics and Family Services.

Parents were encouraged to reserve a seat before their baby was due. In order to schedule these appointments on a first-come-first-served basis, reservation cards were filled in and the appointment set up. We then sent a confirmation letter. This method worked well and has ensured that a seat was available.

The parents (especially the mother) attend a short training session which covers a variety of topics. The National Safety Council slide/tape program "Child Safe" is shown to stress the importance of child restraints. The parents are then given the opportunity to work with the "Love Seat" using either a doll or their baby.

After this familiarization, the Borrowers' Agreement and the Pre-Issuance Checklist are explained and

In the Grissom safety classroom, Captain Wartburg briefs parents on the proper use of the infant seat. (USAF photo by Capt Kenneth Muth)

Among the first to participate in the Buckle-Up Babes program, (left) the son of A1C Barbara Wallace and (right) the son of Sgt Benjamin Curtis. (USAF photo by Capt Kenneth Muth)

signed. One copy of the Borrowers' Agreement and a packet of brochures are given to the parents. A copy of the Borrowers' Agreement and the checklist are suspended in the Safety Office. About a month prior to the scheduled return of the seat a letter is sent to the parents. It reminds them of the due date and also requests early return if the seat has been outgrown.

To complete the training we accompany the parents to their car and show them how the seat is secured. It may seem that we lead the parents by the hand through each stage, but we feel it is important they have a complete understanding of how to put the baby in the seat. Literature from the manufacturer reinforces our presentation.

Administration of the program is entirely the Safety Division's responsibility. It does not require a great deal of time. By assuming this responsibility, we know that the parents have received complete instruction on using the seats. In addition, we are able to ensure that the seats are maintained in a safe and clean condition. The number of each seat and the Safety Division's address and phone number are printed on the bottom of the seat with a felt-tip marker and an electric pencil.

When the program first began most of our "customers" were between the ages of two weeks and six months. Now the seats are being reissued to expectant parents.

Normally, the seat will be available for pick-up three weeks before the baby is due. The loan period actually starts when the baby leaves the hospital. By being able to get the seat so early, both parents can attend the training session. Another reason for early issuance is that the baby will be protected by the seat from the moment it leaves the hospital.

Loan of the seats is free-of-charge and lasts from six to nine months. The manufacturer recommends a limit of 20 pounds and 26 inches in length. The parents are liable for repair or replacement of any component damaged by abuse or if the seat is excessively dirty when returned.

Upon return the seat is inspected. The condition is noted on the post-issurance checklist which is then signed by the parents and a member of the Safety Division. It has been our experience that the seats have been returned in like-new condition. Although each seat has been cleaned prior to its return, we give it another thorough cleaning. Then when the seat is reissued, an additional cleaning is recommended. Seriously worn harnesses and/or padding are replaced.

Grissom's "Buckle-Up Babes" program has been in existence since September 1980. In the first six months, the 18 seats we loaned afforded protection to 30 children. The seats have become traveling advertisements for safety. They have created a "safety habit" which means that later on a higher-than-average percentage of Grissom's children will use a seat belt. We hope the parents and older children in the family will be motivated to use their seat belts more frequently.

The program currently satisfies the needs of Grissom's active duty, reserve, and civilian personnel. If it were to be expanded further, purchasing toddler seats for one to two weeks' loan would be ideal. Under such a concept parents would be able to try a variety of child restraints before deciding which to purchase.

Setting up the program required a small investment of funds and time. The size of the program can be as large and diversified as the size of the group administering it. An 18-seat program can easily be handled by one person. Based on our experience, 24 seats would probably be the maximum for us.

The program has been a delight to develop. Nothing can adequately express the sense of satisfaction in seeing a young passenger riding in one of our "Buckle-Up Babes" seats.

STATE LAWS on CHILD RESTRAINTS

Six states now have laws governing child passenger protection. West Virginia, Kansas and Minnesota are the most recent states to pass bills, having done so during this current session. The West Virginia law provides for safety seats for all children less than three years old. From three to five years old, seat belts can be substituted. The fine of $35 to $50 will be waived if a seat is purchased within five days. The Kansas law sets the age limit at two years and applies to travel in the front seat of the automobile only. Minnesota's law applies to children less than four years of age sitting anywhere in the car. There is no fine, only oral warnings for both Kansas and Minnesota.

California passed an education bill late last year. Although it does not mandate usage, it does provide for a public information campaign on the importance and effectiveness of using safety systems for children less than 15 years old. After the first year of the program, law enforcement officials may issue at their discretion an oral hazard warning.

In addition to these new laws, Rhode Island and Tennessee passed amendments strengthening their existing laws. Rhode Island raised the age limit of children who must be protected from three years to four years old, and requires child safety seats to be used in the back as well as the front seat. Tennessee has deleted the "lap amendment" which allowed children to ride unprotected on the laps of older passengers if safety seats were unavailable. The Tennessee law still provides exceptions for mothers who are nursing or changing diapers.

(As of May 1981, from National Safety Council)

CHILD RESTRAINTS in AIRCRAFT

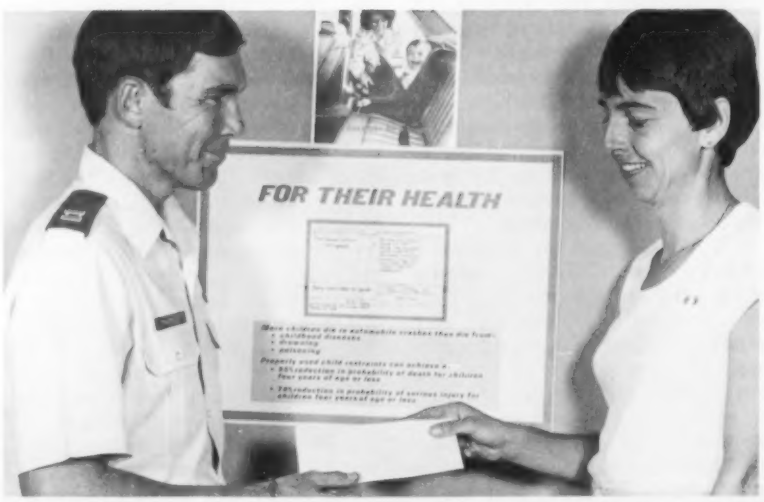
After almost 20 years of debate and discussion, the Federal Aviation Administration has proposed rules for allowing child restraints to be used in commercial aircraft. The aircraft standard would include a separate requirement for fire resistance and would not allow supplemental tether straps in meeting the 30 mph crash test requirement.

The FAA standards will also require that the child restraint be able to hold a child in place during turbulent flight conditions. A realistic test simulation will be used to determine this.

BEFORE the BABY ARRIVES

Many pregnant women are fearful of wearing seat belts, but the fear is groundless. Pregnant women should definitely buckle up. Here are some points to remember:

- Set the belt low to pull in a downward direction on the pelvic bones. The belt should not pull back against the abdominal bulge.
- Sit up straight. Slouching may cause the belt to ride on the abdomen.
- Keep the belt snug, not tight, and wear your shoulder harness, too, if it is a separate unit.
- Use the head rest to reduce body strain and distortion if there is a collision.
- Consult a doctor immediately after even a minor accident.



The Officers' Wives Club provided the seed money to get the program started. Here, Club President Ana Stadler presents the check to Captain Wartburg. (USAF photo by TSgt Reggie Leek)

What is it?

No, this is not the world's largest cement mixer. It's the world's largest rubber-tired vehicle.

Called the M-X Transporter Emplacer (TE), it was developed to provide test data for use in designing a fleet of vehicles that will be used to transport the proposed M-X mobile missiles between protective shelters. It was designed from two tractors which are used to haul ore at mining sites. The two tractors face in opposite directions, connected by a supporting frame which holds a "strongback" and a capsule which would contain the missile. The total weight is about 1,450,000 pounds.

It is about 165 feet long, 30 feet high and 22 feet wide. With the capsule erected the height is 140 feet. Each tractor is powered by a diesel engine rated at 1000 horsepower through a six-speed automatic transmission. Each tractor has a fuel capacity of 360 gallons, for a total of 720, enough for a three-day test. Top speed is about 20 mph.

The vehicle is being tested on a three-mile dirt track at the Air Force's Engineering Test Bed near Mercury, Nevada.

The TE can be driven by one person. A special guidance control system permits the forward facing tractor to be driven manually like a regular truck with the rearward facing tractor propelled, steered and braked under computer control. This system allows use of a minimum road width and it facilitates removal and emplacement of the missile. The vehicle's turning radius is 205 feet.

Oh yes, the tires. Each tractor has 12 tires. They are 24x49 radials, 8½ feet in diameter. With that size and 20 lug nuts each, we wouldn't want to have to change a flat.

This vehicle is made from two tractors used to haul ore, connected by a frame. Test data from this vehicle will be used to design a vehicle to carry the M-X mobile missile.

(USAF photo)

The M-X Transporter Emplacer is 165 feet long.

(USAF photo)

The large tank above the cab contains the hydraulic fluid that is used to erect the missile capsule.

(USAF photo)

An idea to promote a safer Labor Day weekend

A MOTOR VEHICLE INSPECTION PROGRAM

that works

Motor vehicles have been around for so long that most of us take them for granted. We just jump in and drive away without giving much thought to the material condition of the vehicle. But unless some conscious effort is made, vehicles end up in a state of neglect.

Since gasoline prices have increased in the last few years, there has been a widespread move towards the use of self-service stations where the gas is cheaper because service is *nil*. The smiling, helpful service station attendant who used to wash your windows, check your oil, tires, and other fluid levels is now to be found only in the most expensive places.

So now, more than ever before, drivers must take a responsible, active role in everyday maintenance of their vehicles. The rewards of proper routine maintenance take the form of improved fuel economy, fewer and less costly repair bills, greater peace of mind, and increased safety.

Helicopter Combat Support Squadron Three (HC-3), a Navy helicopter squadron based at Naval Air Station North Island in San Diego, California, has implemented a motor vehicle safety inspection program which provides squadron personnel with an opportunity to evaluate their vehicles' road-worthiness. Developed for use before a long holiday weekend, the program uses a checklist for the important but frequently overlooked items of which a driver must be aware. Although the Ground Safety Officer oversees the program, like all safety programs at the squadron it is run by the individual members themselves. Participation is voluntary but highly encouraged by the command.

This program is one way in which HC-3, acclaimed as the safest helicopter squadron in the Navy, keeps its people as safe on the ground as they are in the air.

by
Lt DAN REED, USN
HC-3

U.S. Navy Photos by
PH2 A. PUCKETT

HC-3 MOTOR VEHICLE SAFETY INSPECTION FORM

1. **Radiator** — check water level, hoses, cap
2. **Oil** — check within safe limits
3. **Battery** — check water, cables, security
4. **Windshield washer reservoir** — check level
5. **Transmission fluid** — check within safe limits
6. **Power steering reservoir** — check level
7. **Drive belts** — check tension, wear
8. **Leaks** — oil, gas, water
9. **Tires** — pressure, tread wear, lug nuts
10. **Fuel** — check level
11. **Horn** — check operation
12. **Windshield wipers and washer** — check operation
13. **Windows and mirrors** — check cleanliness, damage
14. **Seatbelts** — check condition
15. **Interior** — check cleanliness
16. **Ashtray and glovebox** — empty of trash
17. **Headlights** — check low and high beam
18. **Turnlights** — check operation front and rear
19. **Rear lights** — check operation, including brake and backup lights
20. **Hazard lights (flashers)** — check operation
21. **Reflectors** — check condition
22. **Tailgate** — check operation (if applicable)
23. **Engine** — check running condition
24. **Instrument panel** — check normal indications
25. **Transmission** — check smooth shifting
26. **Steering** — check for looseness, pull to right or left
27. **Brakes** — check firmness
28. **Emergency brake** — check operation
29. **Exterior** — check for damage

The little ride schoolhouse

Unfortunately, many people don't feel they need formal training to ride a motorcycle. A lot of riders teach themselves or rely on tips from friends. As a result, they never learn the critical skills needed to ride safely.

A research study showed that 25 percent of motorcycle accidents happen to riders with less than six months of riding experience. Experienced riders — with an average of three years riding time — don't fare much better. Of the 886 riders whose accidents were studied, 75 percent didn't carry out corrective evasive maneuvers to avoid a collision. And 32 percent took no evasive action at all!

Through proper training, motorcyclists can learn riding techniques which will help them avoid accidents.

Hands-on training takes 60 percent of the time in the Motorcycle Rider Course.

(right)
Dealing with obstacles is taught in MRC as a hands-on experience.

EeFfGgHhIiJjKkLlMmNnOoPpQqRrSsTtUuVvWwXxYyZz

BILLY LUVS MOTORSIKLES +2 +2 = CAT

Why Rider education?

MSF instructors are experienced motorcyclists who know their subjects and can express themselves well — even if it does take a lot of body English.

The Motorcycle Safety Foundation (MSF) has developed a motorcycle safety course and implemented it in 49 states as well as on many military installations.

Developed by MSF, the Motorcycle Rider Course (MRC) trains people in the proper and safe techniques to use when riding a cycle. Research-based and field-tested, the MRC offers the latest in teaching methods and instructional guidelines, along with a complete set of educational materials.

The course is taught by experienced motorcyclists who have completed a minimum of 50 hours instruction.

As more rider education programs become available, the need for qualified motorcycle safety instructors becomes even more pressing. To answer this need, MSF trained 62 instructors at its headquarters in Linthicum, Md., a Baltimore suburb, in 1980. Another 87 were certified at workshops in seven other states last year. These instructors, along with 7,600 trained in past years, are available to teach in motorcycle rider education programs.

To meet the increased demand for trained instructors, MSF began a chief instructor program in 1979. Trained by Foundation staff, these individuals are authorized to conduct instructor preparation workshops throughout the country. During 1980, 30 new chief instructors were trained. In turn, this cadre of top level instructors trained 216 new motorcycle safety instructors in workshops held in 10 states.

One of the three chief instructor workshops held by MSF staff in 1980 was a special course for U.S. Air Force and Navy chief instructors. This workshop trained 12 chief instructors (see "Motorcyclists Help Motorcycling," December 1980 DRIVER). Since then these graduates have been conducting instructor workshops at military bases throughout the world.

These military chief instructors have also been involved in instructor workshops in local communities. This includes a training session conducted with special press coverage at the Hollywood Bowl recently.

The MRC includes 12 hours on-cycle and eight hours of classroom instruction. Textbooks, overhead transparencies, slide programs and films help make classroom instruction interesting and informative. Motorcycle manufacturers and distributors loan cycles free of charge for riding exercises.

Not everybody who passes the course gets his license. A study conducted by the National Highway Traffic Safety Administration showed 40 percent of the students who passed a motorcycle rider education course get a motorcycle license. Another 30 percent found out that motorcycling wasn't for them. The important point is that rather than learning to ride in traffic, their first motorcycling experience was in a safe, controlled, off-street situation.

For those of you adding percentages, the balance of the group (30 percent) did not get licenses for a variety of reasons. Many took the course to learn to ride motorcycles, but they only ride off-road or in some other mode that doesn't require state licensing. Still another group took the course just in case sometime in the future they decided to get a motorcycle endorsement to their license. And, finally, there were a few who didn't pass their license test after completing the course.

The students who do go on to get a motorcycle license are better prepared when they ride in traffic — they've learned important techniques for safe riding.

Those who complete the course but don't become licensed motorcycle riders are more aware of

continued

why rider education?

continued

motorcycles when driving their cars.

Perhaps one of the biggest pushes MSF instructors give is to wearing helmets, whether or not the state has a law mandating such use. To date, 31 states have no mandatory helmet-wearing law; however, helmet and eye protection are required on all Air Force bases regardless of state law.

Although rider training cannot totally prevent accidents and helmets cannot eliminate all injuries received in motorcycle accidents, statistics prove that training does reduce the number of accidents and helmets reduce the severity of injuries.

Larry Wilcox, who patrols Los Angeles' freeways on TV's "CHiPs," was one of the media attractions at the recent Hollywood Bowl MSF workshop. Wilcox is the 1981 chairman of the MSF Ride Smart Campaign. Through a series of personal appearances, posters and public service advertisements, he is urging cyclists to wear their helmets and sign up for rider training courses.

Countersteering is one of the lessons that must be learned to avoid accidents. (See "Motorcycle Cornering," April 1980 DRIVER.)

(below)
Two-up motorcycling may only be for the experienced, but students still "get the feeling" during hands-on training.

Peg riding is a necessary lesson in motorcycle handling because it is required when dealing with unavoidable obstacles.

A key to hands-on motorcycle training is constant reinforcement of the lesson and how it is to be done.

STUDY REVIEWS BELT USAGE LAWS IN 21 COUNTRIES

A new international survey of safety belt use laws in 21 countries by the American Seat Belt Council has found many countries experiencing substantial savings in health and other accident-related costs. In announcing the survey results, ASBC President Charles Pulley said, "The success in foreign countries of seat belt use laws in reducing auto fatalities and injuries should serve as an incentive to the United States to enact similar legislation."

The most dramatic reduction in occupant deaths occurred in Sweden, where driver fatalities were reduced by 47 percent and passenger fatalities by 67 percent. The Canadian province of Saskatchewan experienced a 38 percent drop in occupant injuries after passage of its belt use law.

Along with having the highest fatality reduction, Sweden also has the highest belt usage rate. In urban areas, belt usage climbed from eight percent to 85 percent and on highways it increased from 33 percent to 90 percent. The survey determined that safety belt use laws are effective only in those countries where usage is mandatory and the law is properly enforced. Norway, for example, passed a usage law in 1975 without a fine. Despite efforts by officials to encourage compliance, they did not significantly affect usage rates. However in 1979, a $36 fine was attached to the law and usage increased to 77 percent in cities and 88 percent on highways.

The savings in accident-related costs has been substantial for many countries. The Swiss government recorded savings of $42 billion, the Spanish government $22 to $45 million. "If American motorists followed the same practice of buckling up as residents of other countries," Pulley said, "we could cut traffic deaths and injuries at least in half and save consumers millions of dollars through reduced medical and insurance bills."

GENERAL MOTORS CORP. IS RECALLING 56,000 CARS

General Motors Corp. is recalling 56,000 cars because of defective rear seatbelt retractors. The company discovered during in-plant testing that the belts failed to meet federal safety requirements since the initial locking position might not engage properly. Cars affected are late 1980 model Monzas and Sunbirds, late 1980 and early 1981 model Chevettes, and early 1981 model Camaros and Firebirds. The auto maker will ask owners to check the rear belts for the defect or to take the car to a dealer. If a problem is discovered, dealers will install new retractors. The company has not received any reports of injuries attributed to the defect.

FIRST ALCOHOL-FUELED PRODUCTION CARS DUE

The nation's first vehicles built specifically for alcohol fuels are headed for California and a three-year endurance test according to the state Energy Commission.

They are 37 Volkswagen Rabbits and pickup trucks from the Volkswagen of America plant at East Huntington Township, Pa.

The Energy Commission, which is financed by a surcharge on all California electricity bills, said the test will cover more than a million miles.

It said the vehicles, powered by methanol and ethanol, are expected to meet California's 1982 emission standards and the federal government's 1985 fuel mileage standards.

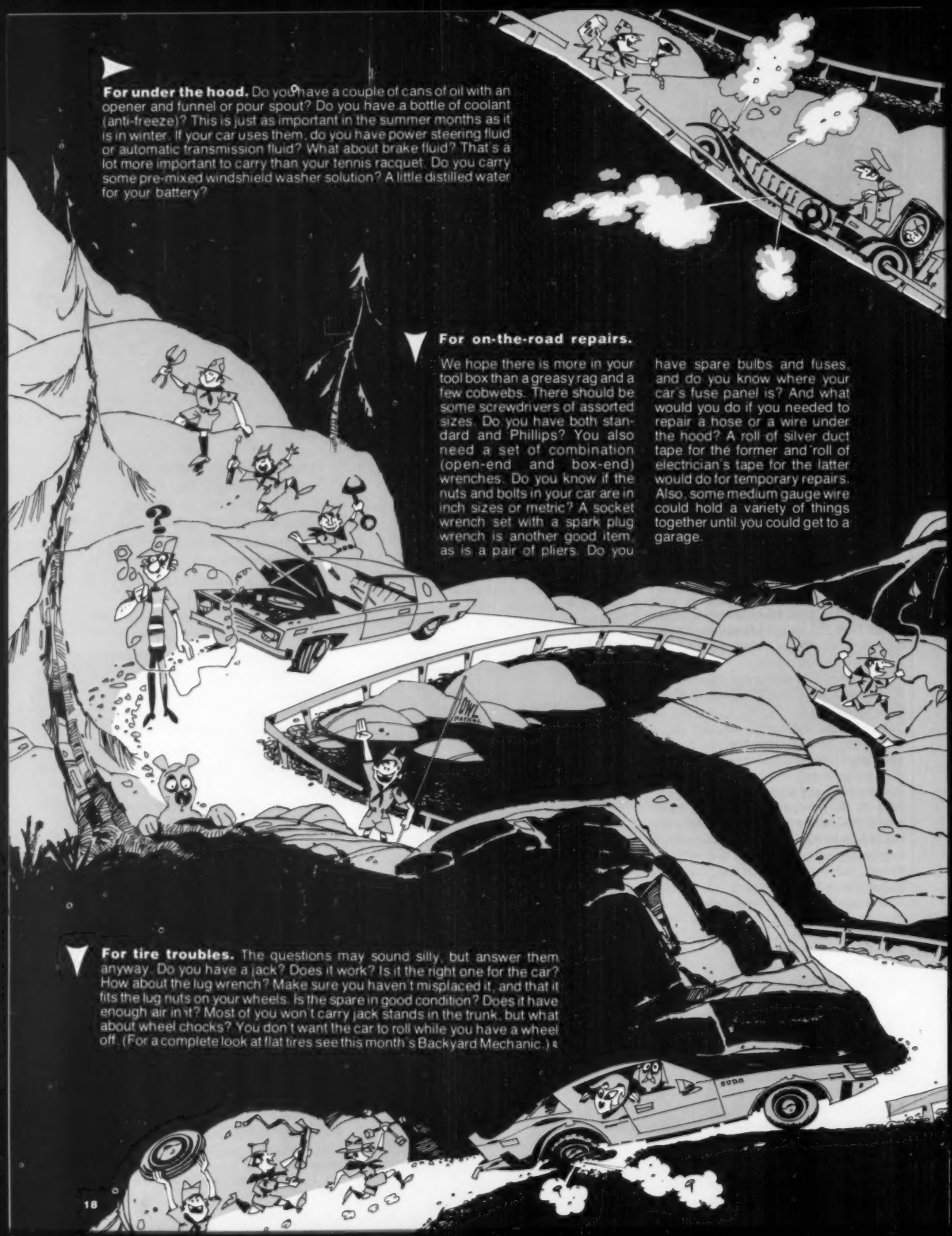
The production cars will bring the commission's fleet of pure-alcohol vehicles to 50, and the total alcohol-fuel fleet to 90 cars and pickups.

NO MORE DATSUN?

Nissan Motor Corp. in U.S.A. says reports that they will immediately drop the Datsun name are exaggerated. In October they will introduce the new "Stanza," which will carry the Nissan name prominently but not discard Datsun. The Japanese maker will also move away from numerical designations. Nissan says the higher visibility of the Nissan name is part of an ongoing effort to bring all international auto operations under the same umbrella. In some parts of the world, the Datsun nameplate is used only for trucks.

Second Lieutenant Dan Teen is driving his American-built sedan on an English street near his base. He approaches an intersection just behind a British national's lorry (truck). After the British national leaves the stop sign, 2d Lt Teen comes to the intersection and makes a right turn. He fails to see a small British car coming from the opposite direction and he collides with it in the middle of the intersection.

It's a case of inexperience along with inattention. Lieutenant Teen is not used to driving on the left side of the road, and he's not sure where to look. Everything feels wrong to him. Add to this the left-hand drive of his car which obscures his view of the intersection when he is behind the truck. Add to this a slight lack of caution before he makes the turn. The result is a smashed automobile, a traffic ticket, and a lot of trouble with the base authorities.



For under the hood. Do you have a couple of cans of oil with an opener and funnel or pour spout? Do you have a bottle of coolant (anti-freeze)? This is just as important in the summer months as it is in winter. If your car uses them, do you have power steering fluid or automatic transmission fluid? What about brake fluid? That's a lot more important to carry than your tennis racquet. Do you carry some pre-mixed windshield washer solution? A little distilled water for your battery?

For on-the-road repairs.

We hope there is more in your tool box than a greasy rag and a few cobwebs. There should be some screwdrivers of assorted sizes. Do you have both standard and Phillips? You also need a set of combination (open-end and box-end) wrenches. Do you know if the nuts and bolts in your car are in inch sizes or metric? A socket wrench set with a spark plug wrench is another good item, as is a pair of pliers. Do you have spare bulbs and fuses, and do you know where your car's fuse panel is? And what would you do if you needed to repair a hose or a wire under the hood? A roll of silver duct tape for the former and roll of electrician's tape for the latter would do for temporary repairs. Also, some medium gauge wire could hold a variety of things together until you could get to a garage.

For tire troubles. The questions may sound silly, but answer them anyway. Do you have a jack? Does it work? Is it the right one for the car? How about the lug wrench? Make sure you haven't misplaced it, and that it fits the lug nuts on your wheels. Is the spare in good condition? Does it have enough air in it? Most of you won't carry jack stands in the trunk, but what about wheel chocks? You don't want the car to roll while you have a wheel off. (For a complete look at flat tires see this month's Backyard Mechanic.)

Did you forget something?

Applying the Boy Scout motto

Some friends of ours have had a string of disastrous picnics. If they don't get rained on, they fall in a stream. If they don't drop their ice chest and all their food down a mountainside, they forget to bring something important.

On their latest outing they forgot to bring silverware. They had a lot of fun trying to eat mashed potatoes and gravy using strips of cardboard from a Colonel Sanders' box as forks.

Those are minor troubles, but they illustrate the old Boy Scout motto "Be prepared." If you think about possible problems you will be prepared to handle them.

The motto is a good one for many different efforts, including driving a car. If you're prepared you won't end up on a deserted road with a flat tire and no jack, or with a broken radiator hose and no tape to make a temporary repair.

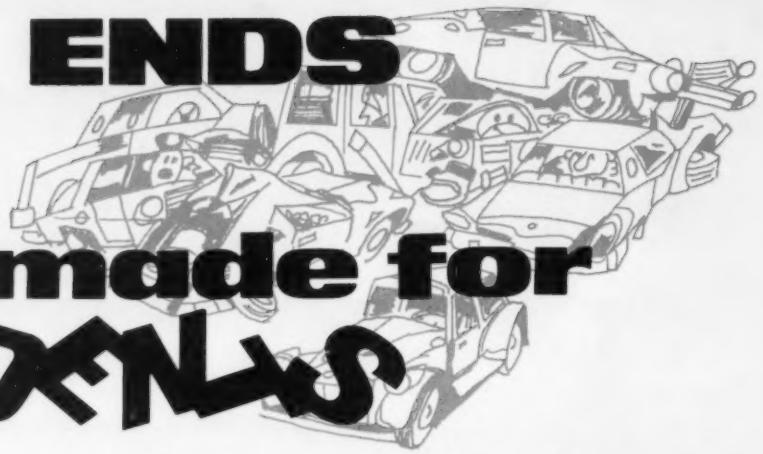
Here are a few things to make sure you have in the car:

For warning others of a breakdown. Putting your hood up (whether or not you need to be under it) may not be enough. To be safe, do you have some flares to set just behind the car and a couple of hundred feet back? How about a set of reflective warning triangles? Do you have a flashlight for signaling, as well as seeing your work at night?

For good measure. Do you have a good set of jumper cables for when your battery is weak? Do you have a pair of coveralls and some work gloves to save your clothes from grease and your hands from cuts? How about just a piece of tarpaulin to put between yourself and the gravel when you get under the car?

Being unprepared is no fun, whether it's trying to cut an apple pie with your fingers at a picnic or discovering you have no water for your radiator in the case of a boilover. So think ahead. If you ask yourself "What's the worst that could happen?" and prepare for it, it won't happen.

WEEK ENDS were made for ACCIDENTS



You used to hear the expression "Sunday driver" a lot. It meant someone who drove only on occasion and was therefore not very proficient and caused accidents. However, some statistics we came across indicate "Saturday drivers" and "Friday drivers" are equally bad, or worse.

National Safety Council figures show that Saturday is the worst day of the week, in terms of the number of fatal traffic accidents. Twenty-one percent of the nation's motor vehicle fatalities occur on Saturday. Friday is second with 17 percent, Sunday is third with 16, Wednesday and Thursday each have 12, and Monday and Tuesday each have 11 percent. So the weekends are the worst time for accidents, as might be expected. Despite all the negative things being said about Mondays, it seems you're safer then than at other times of the week.

Why is this? Perhaps it is because there are more people on the roads on weekends, whereas on the weekdays people are at work for eight hours and not in their cars.

The times of day that the accidents occur are also interesting. The most dangerous time on Saturday is between two and three in the morning (which might be considered part of Friday night). The safest time on the "good" days of the week is in the morning, especially between four and five when nobody but joggers and milkmen are on the road.

Another interesting thing in that same set of stats was the worst month for accidents: August. The monthly fatal accident figures rise from January through late summer and then they drop back off toward the end of the year, although not to the January level. Januarys show a significant decrease in fatal accidents over the previous holiday month of December.

So your chances of having a fatal accident increase as the week wears on and as the year wears on. Depending on the day of the week, early morning could be either the safest time or the most hazardous. Does this mean you're safest on a Monday or Tuesday in January at 4 a.m. and you run the greatest risk on a Saturday in August at two in the morning? Maybe.

In the summer and on the weekends there are more people on the roads. This means there are more of the occasional drivers — the possible bad drivers — out there. And, of course, weekends are the time when drunk drivers abound.

What can you do to protect yourself from the bad (or drunk) drivers? First, be watchful. Watch not only what you are doing but what others are doing, and be alert for anything unusual.

Another thing is to wear your seatbelt at all times, even when you're just driving to the store for a pack of cigarettes. Seatbelts won't prevent the accident, but they will decrease or eliminate injuries if an accident occurs.

Weekends, and summers too, are really made for fun and relaxation. Try to save them for that.

make it Click

A National Campaign to Promote Motor Vehicle Occupant Restraint Use

This "Make It Click" logo is a part of a National Safety Council program to encourage the use of seatbelts. You may already have seen it and you'll be seeing it occasionally in DRIVER. It's a message that makes good sense.

Take this auto accident for example. The driver of this car had his seatbelt fastened when he fell asleep at the wheel and hit a tree at 45 mph. He suffered only minor cuts, bruises and strains and was released from the hospital that same night.

Remember your belt each time you get into your car, and remember to have all the other occupants buckle up, too. Make it click.

National Safety Council
Women's Division
444 North Michigan Avenue
Chicago, Illinois 60611

(Photo by A1C Phil Peplinski, Luke AFB Photo Lab)

ALL YOU EVER WANTED TO KNOW ABOUT

FLAT TIRES

BUT WERE AFRAID YOU'D FIND OUT

Whoomp, whoomp, whoomp. Your day is ruined. Whoooomp, whoooomp, whoomp. You ask yourself, "Why me?" Whoomp, whoomp, whoomp. The steering wheel pulls harder than you can pull back. Whoomp, whoomp, whoomp. "Oh, no!" slips from your lips. Whoomp, whoomp, whoomp. Just what you didn't need — a flat tire.

One of the unwritten laws of driving is that flat tires will *always* happen when you can least afford them. You've overslept. If you're late one more time you'll have to face the commander. You're already late for that dreaded dental appointment. Or the entire Peculiar, Mo., Temperance Little League Championship Team is in the back on their way to the Carrie Nation District finals.

Even if it isn't a biggie, there's no good time for a flat tire. But you aren't alone. More than 50 million Americans have flat tires every year.

First things first: You're going to have to get off the road safely. Keep a firm and steady grip on the steering wheel and don't oversteer to correct swerve or pull. If a front tire goes, there will be a strong pull toward the side with the flat. A flat rear tire tends to cause the back of the car to swerve.

Above all, don't slam on the brakes! Sudden or hard braking will cause you to lose control of the car. Just take your foot off the gas pedal and steer firmly. If you must brake, do it smoothly and easily.

Get onto the shoulder and limp along until you find a place level enough to change the tire safely. It is better to risk ruining a tire than to stop in a dangerous spot.

If you must stop close to a traffic lane, on a curve, over a hill or in any risky position, get everyone out of the car and well away from traffic. And by all means, don't block tailights at night by standing or working behind the car.

Hopefully you've been carrying out a good preventive maintenance program and there is air in your spare. And don't put off getting the flat fixed, or the next thing you know: Whoomp, whoomp, whoomp. And you'll be out of spares and luck.

Wearing your shoe through to the ply leads to trouble only if you prop your feet up on the desk and somebody notices, or when you walk on wet grass . . .

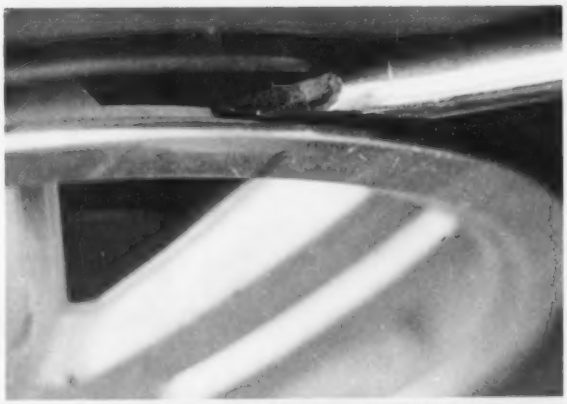
. . . but (left) wearing a tire to the ply leads to a flat tire that can spell disaster.

Having navigated safely to the shoulder of the road, set the emergency brake and activate the hazard (four-way flasher) lights.

Day or night, place a warning triangle or flare about 15 feet behind the car and another at least 300 feet back (that's about 120 paces).

Chock the wheel diagonally opposite the flat. Good chocks are 12-inch sections of four-by-four lumber placed in front of and behind the tire.

Remove the jack, lug wrench and spare tire from the trunk. Notice the detailed instructions on the jack storage area lid.



(above right)
Pry the wheel cover off with the chisel end of the lug wrench. A medium flat-bladed screwdriver works well, too.

(right)
Place the jack on firm ground, making sure it's perfectly vertical. You may have to place a six-inch section of two-by-four under the jack base to keep it from sinking into loose soil.

continued

continued

(far left)
Slightly loosen each lug nut. A good preventive maintenance trick is to squirt a quick shot of penetrating oil on the base of all lug nuts twice a year. If you don't, you may find that busting loose rusted lug nuts requires the help of the Incredible Hulk.

(near left)
Rather than try to use the small lug wrench that comes with most cars, invest in a good cross-bar lug wrench.

(below)
Jack the car up until the wheel is two to three inches off the ground.

Remove the lug nuts and place them in the wheel cover. A hand and knee search for lugs that rolled away in the dark isn't going to make having a flat tire any more *fun*.

(left) Lift the flat tire off and lay it down. Don't balance it against the car. As you've already had the bad luck of having a flat tire, the odds are a balanced flat would fall over — and your hand or leg would be under it when it did. **(right) Replace** the wheel with the spare. In this case, the spare is a temporary tire and should not be driven on very far or very fast.

Screw the lug nuts on until snug.

Lower the car until the tire just touches the ground.

Tighten the nuts hard.

Finish jacking the car down.

Insure that the lug nuts are tight.

Load everything back into the trunk before driving away.

continued

continued

HOW the PRO$ DO IT

The Backyard Mechanic took 10 minutes to change one tire, pages 23, 24, 25. NASCAR pit crews can change all four tires, clean the windshield and add 22 gallons of gasoline in less than 30 seconds. Here the Junior Johnson crew gives Darrell Waltrip (#11) the winning treatment during the recent Warner W. Hodgdon 400 at Riverside, Calif.

tteecc!h!
DOUBLE TECH Q A

With TSgt RON LATHROP

COMMENT: After reading the April 1981 DRIVER I felt compelled to comment on the "Backyard Mechanic." You postulate a wrench rule "always pull, never push, the handle," arguing that if the wrench slips off, or the part breaks, you will fall away from the work instead of into it. In my opinion, this invites trouble in two ways: (1) In some situations, a wrench that slips off the nut can come hurtling towards your face, posing a real danger to teeth and eyes, (2) Pulling on the wrench handle requires curling your fingers around it — which will turn into a *real* knuckle buster if the wrench slips off the nut. I prefer to *push* on the wrench handle with my palm — if the wrench slips off, or if the nut suddenly loosens, my fingers will not be in any position to get pinched between the wrench and the engine.

REPLY: If you were pulling hard enough for a wrench to fly toward your face, you'd probably land hard on the ground as you fell backwards. And the wrench would miss. Pushing a wrench with an open palm may allow you to apply more strength to the job, but you will not have control of the tool. The odds are you will consistently slip off the work because of the lack of control. As a result your fingers won't get pinched between the wrench and the engine; but you will smash your open hand against the engine, bend a finger or two in the wrong way on the firewall, scrape the skin off the back of your hand on a tang, punch a nice hole in your palm on a pointed surface. . . . Most occupational safety experts agree with me, never push a wrench.

COMMENT: One shop tip that a friend showed me works extremely well when using solvent to loosen a frozen bolt or nut. After liberally applying the solvent, gently tap the bolt or nut with a hammer for several minutes, reapplying solvent frequently. The tapping produces small vibrations which allow the solvent to penetrate the threads better, and makes it possible to remove almost any frozen nut or bolt with little effort.

REPLY: You've got my vote on that one. DRIVER hasn't mentioned it since the Motorcycle Maintenance articles of November and December 1979.

COMMENT: I take issue with the answer about changing automatic transmission fluid you provided in the May 1981 issue. If the transmission fluid is dark brown or smells burned, you had better change it *all*. The pan on an automatic transmission normally contains only a fourth of the total transmission fluid. The remaining fluid is in the torque converter, transmission cooler and lines. To drain it all, get a shop manual for your vehicle and follow the procedure for draining the torque converter. Most transmissions have a way of doing this. If your shop manual doesn't state how to do it, take your car, as soon as possible, to a transmission specialist. The quickest way to burn up (or otherwise ruin) an automatic is to drive it with burned transmission fluid. Don't forget to change the filter and pan gasket when you change the fluid.

REPLY: Torque converters in today's transmissions are sealed units and the fluid cannot be drained from them. When the transmission fluid becomes contaminated (not just burned) the entire unit must be replaced. The auto manufacturer transmission experts tell me that changing the amount of fluid in the pan is enough to revive all the fluid. I don't recommend individuals tackle anything beyond changing the fluid in the pan and replacing the filter. All other automatic transmission work should be handled by an expert.

COMMENT: What's better for getting the best fuel economy: driving with the windows down, or driving with the windows up and the air conditioning on?

REPLY: That depends on the specific cars. Cars of the '70s were aerodynamically sound, and as a result at speeds above 40 mph the drag of air into open car windows is more than the drag on the engine caused by air conditioning. For example, in a recent study, 1979 compact police cars delivered 18 mpg at 55 mph with the windows open, but got 22 mpg at 55 mph with the windows closed and the air conditioner on. For the '80s, car aerodynamics have progressed to where opening the windows no longer causes huge drag factors. But the smaller engines can really be drained by air conditioning units. Another recent test of a 1981 subcompact showed a one mpg penalty for opening the windows, but a three mpg penalty for turning on the air conditioning. As I said before, fuel economy depends on the specific car.

continued

double tech

continued

COMMENT: A friend and I have identical cars and drive similar distances over similar roads and streets to work. My friend is a regular lightfoot, being very gentle on the gas pedal and shifting as soon as he possibly can to a higher gear. While I'm no wheel squealer, I'm not exactly gentle with my right foot and like to wind my engine up in the gears. Our cars are tuned by the same mechanic, and he says both cars are the same. Yet my friend gets less than 14 mpg with his, while I get a little over 18 mpg. This is contrary to everything I've heard. What gives?

REPLY: First of all, no two cars are identical. But putting that aside with road conditions, we'll assume that the only difference is driving habits. Internal engine pumping losses are at their lowest when the engine doesn't have to fight a partially open throttle. Your friend's way of driving, which is almost like idling, results in tremendous internal losses. These are compounded by the amount of time he spends slowly getting to his low shifting points. On the other hand, your driving habits allow the engine to suck its intake mixture without the interference of the throttle plate. You could get even better mileage by using moderate (not more than ¾ throttle) acceleration with your friend's lower shifting points. This could be a 15 percent or better improvement since there are less friction losses at reduced revs.

EDITOR'S NOTE: Double Tech discusses general interest automotive comments and questions. When sending questions and comments to Double Tech, be sure to include all available information which will help in finding the correct solution. If you have a question you'd like answered, and feel others could use the knowledge also, send it to:

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BACKFIRE
LETTERS to the EDITOR

DRESSING THE PART

This happened several years ago, before the national speed limit of 55, but the events that happened to me still apply to any motorcycle rider whether novice or experienced.

There I was, driving north along Highway 99 in California on my Kawasaki H-2 750 two-stroke triple just north of Fresno. The weather was turning lousy, and I stopped under an overpass to ride out the worst of the rain.

Finally, it let up enough that I could push on to Merced and finally into Castle AFB where I was stationed. I wanted to get back where I could get warmed up. I wasn't in bad shape, cold-wise, as I had on heavy sweater, a light waterproof windbreaker, a nice warm (and water resistant) leather jacket, and two pairs of Levis and jump boots. I was at least dressed warmly!

I knew that things were not in the best of conditions, and I had just had a close call: A car was making a left turn in front of me and seemed unsure if he/she was going to pull right into my path or wait. I slowed down until I knew that I couldn't stop anyway, so I slammed open the throttles, flicked the high beam to low and back again (it was overcast, but still daylight), and shot past the danger. I must have startled the driver because the car had been creeping forward but the hood level dropped as the brakes were applied just as I passed. My confidence rose, and I pressed on in the gathering darkness.

Finally, on the home stretch, crossing railroad tracks not more than 300 feet from the main gate, I ran into trouble and my overconfidence really got me! The time was about 8:30, pitch dark, and drizzling. I drove over the railroad tracks about 20 mph on the final point of entering the gate. Exiting the base at that time was an overseas returnee's spouse with an expired license (that I found out later), making a left turn at the signal light about 75 feet in front of me. I thought to myself there was no way, considering the rain, my headlight bouncing as I negotiated the railroad tracks and the darkness, that the driver could not see me — wrong! As I drove the last couple of feet that I could have been stopping for this "driver," I realized too late that I was in trouble! The roadway was soaking, limiting traction, especially for two wheels, and rather than slide under the station wagon that suddenly looked like a Bulldog Mack, I righted the bike from the turn I had initially started in my first realization of danger, and kept the brakes on to the point of impact.

My speed was less than 10 mph at impact but I still flew over the Malibu, landing flat on my back. The bike was a total loss, the damage to the Malibu was easily repairable, and I was carried away on a stretcher with both ankles severely bruised, not to mention my ego! I was told that I was lucky (what a laugh!). If I hadn't been wearing a helmet, I would have had a concussion, as two feet of helmet skid marks were on the road, and I was wearing enough clothing that none of my skin was so much as scratched.

Why did I laugh at being called lucky? I could have avoided the accident entirely and I knew it, that's why! I still ride motorcycles, own a big Yamaha 1100, and dress the part. Boy, do I ever!

A.D. Edmonds, USAF
Offutt AFB, NE 68113

SAY WHAT?

I enjoy reading your monthly publication and particularly like the helpful hints provided. My comment is not a criticism of your publication, but of our legal systems which require extreme amounts of words to say nothing. Reference your quote of

the California law to address the use of high beams in response to comment from ASH Z. Wilharms, USN, in the "Letters to the Editor" section of the May 1981 issue.

It never fails to amaze me whenever an entire paragraph is written, all that is necessary to be said is:

"When within 500 feet of approaching vehicle, dim your headlights."

SMSgt Ken Canterbury, USAF
Homestead AFB, FL 33039

Two of our staff agree with you; the other says, "The manifestation of this philosophy is unequivocally paramount."

OUR BIAS IS SHOWING

I've been reading DRIVER for two or three years now and I've noticed one thing — you're biased. Every time I read an article on motorcycles I noticed a few things. References are always to stock or dressers. Hardly, if at all, do you see or hear about "choppers," "customs," "cafe racers," etc. Next, you're pro-helmet and pro-lights on. Never do you print or allow for the other sides of the story. You always say, "The people who oppose helmets say they stop your hearing, reduce vision and break necks, but there's no proof to support this," and you leave it there. You don't have any proof they do any substantial good, yet to read one of your articles, God himself came down and told you they were the miracle cure.

People who oppose helmets have sound arguments. Don't try to fix figures as the DOT has been caught at many a time, as it constantly gets blasted by the motorcycle community.

Lights on: you don't tell people three things. (1) Your headlights tend to burn out frequently when you constantly use them. (2) There is no proof that people see you any better and (3) when they do see you, research is finding out, they have a harder time judging your distance and speed.

You're not *Cycle World*. If people don't like it, they buy a different magazine. The military doesn't put out a variety of magazines dealing with motorcycles. It's your responsibility to show all sides. There are a lot of people out here who don't ride dressers, support helmet laws or helmets and lights on. You're financed with our tax dollars. You want us to call it our military, then how about making it that way.

MM2/SS Roy Becker, USN
FPO San Francisco 96601

You're right. DRIVER Magazine, being a traffic safety publication, is biased: We want to see all motorcyclists continue to enjoy riding. Therefore, we fully support all safety equipment including helmets and eye protection. It doesn't take figures to tell most people that in a motorcycle accident the human head is bound to hit something. And that head will be about like a raw egg hitting the ground – that is unless it is protected by a good helmet.

"LITTLE TOOT"

Although the CPSC and HTSA did not have any complaints on file for 1980 Honda Accords, or any other year or model, I believe they should, and have sent them copies of this letter.

The problem is easy to describe, but not so quickly recognizable as a hazard. The Honda automobile horns literally emit a low-decibel "toot" much different from the substantial blasts from domestic motor vehicles to which we have become accustomed and have conditioned our reflexes. In normal urban, slow-moving traffic, a "toot" is audible but on the freeways and in fast-moving traffic, or particularly when encountering vehicles approaching from an opposite direction, a "toot" cannot be heard in many instances.

If drivers are depending on their horns as warning devices, ultimately to possibly help get them out of a tight spot, they should be aware that a "toot" may not get the other drivers' attention or even be heard. Therefore, they should drive accordingly — very carefully.

SMSgt Jerry D. Smith, USAF
Kelly AFB, TX 78241

ADJUSTABLE WRENCHES

The letter about wrenches in the June '81 DRIVER appears to be an attempt to revolutionize the tool industry with his/her essay on adjustable wrenches attempting to promote some controversy. The letter-writer is incorrect. Technical Order 32-1-101, page 111, describes and depicts correct method of use for adjustable wrenches. I quote, "Never turn adjustable wrenches so pulling force is applied to adjustable jaw. Wrench is likely to slip or break. Always turn wrench so force is received by stationary jaw." The T.O., issued in 1945, is also an Army Tech Manual. It is doubtful we mechanics have all been wrong for all these years. Additionally a Snap-On Tool Co. safety training film recently presented here also showed the T.O. method to be proper method.

Thanks for a great magazine.

Franklin Silva, USAF
McChord AFB, WA 98438

That's DRIVER's technical editor, all right. First he's right, but then he's wrong so he says so. Then he's wrong again, which made him right in the first place. The bottom line: Don't use an adjustable wrench unless all else fails. Then, if you're DRIVER's tech ed, don't use it anyway.

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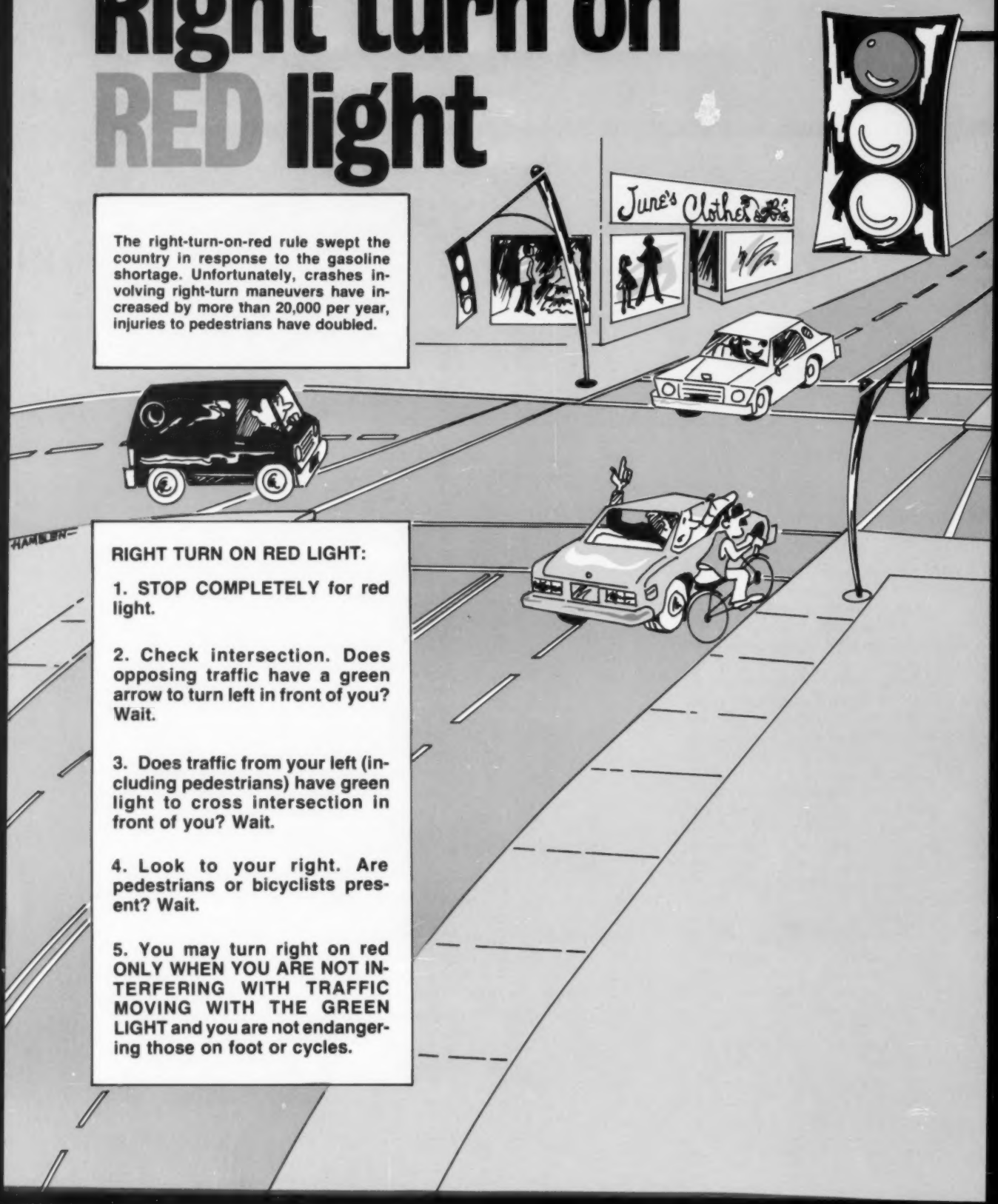
Right turn on RED light

The right-turn-on-red rule swept the country in response to the gasoline shortage. Unfortunately, crashes involving right-turn maneuvers have increased by more than 20,000 per year, injuries to pedestrians have doubled.



RIGHT TURN ON RED LIGHT:

1. **STOP COMPLETELY for red light.**

2. **Check intersection. Does opposing traffic have a green arrow to turn left in front of you? Wait.**

3. **Does traffic from your left (including pedestrians) have green light to cross intersection in front of you? Wait.**

4. **Look to your right. Are pedestrians or bicyclists present? Wait.**

5. **You may turn right on red ONLY WHEN YOU ARE NOT INTERFERING WITH TRAFFIC MOVING WITH THE GREEN LIGHT and you are not endangering those on foot or cycles.**